

I claim:

1. An exercise apparatus for simulating skating or roller blading movement in a user, said apparatus including,

a pair of shuttles, each of said shuttles including a frame for supporting a foot of said user, and a guiding mechanism,

a pair of guide rail assemblies, each said guide rail assembly extending in a direction away from the other in a substantially mirror arrangement from raised proximal upper ends and extending downwardly and rearwardly to a lower distal end portion,

each said guiding mechanism guiding said associated shuttle in movement along an associated one of said rail assemblies between the proximal end and distal end portion,

and whereby alternating reciprocal movement of said shuttles along said associated rail assemblies moves the feet of a user thereon substantially in skating or roller blading movement.

2. The exercise apparatus of claim 1 wherein each said rail assembly comprises a pair of substantially parallel spaced rails, and each said guiding mechanism further includes at least one pair of wheels rotatably engaging at least one of said rails of said associated rail assembly for rolling movement therealong.

3. The exercise apparatus of claim 1 further including a return device for biasing the shuttles to an initial starting position spaced towards the proximal end of said associated rail assembly.

4. The exercise apparatus of claim 3 wherein said return device is selected from a resiliently extendable spring and a resiliently extendable shock cord.

5. The exercise apparatus of claim 1 further including a tensioning mechanism selectively operable to permit said user to vary resistance to the movement of said shuttles in at least one direction along said associated rail assembly.

6. The exercise apparatus of claim 5 wherein said tensioning mechanism includes,

a flywheel,

a pair of elongated drive cables, a first end portion of each of said cables being coupled to a corresponding one of said shuttles, and linked at the other second end portion to provide rotational energy to said flywheel when said shuttle is moved towards the distal end of the rail assembly associated therewith,

a tensioning strap engaging said flywheel, and

an adjustment mechanism for increasing or decreasing contact pressure between the strap and the flywheel, whereby adjustment of the contact pressure of said strap against said flywheel produces a corresponding increase or decrease in the resistance to shuttle movement.

7. The exercise apparatus of claim 1 further including a pair of pedals, each of said pedals comprising a generally planar plate being mounted to a respective shuttle frame and sized to support one of said user's feet thereon,

the frame including a proximal support spaced towards said proximal end of said associated rail assembly, and supporting a proximate-most portion of said plate, and

a distal support spaced towards said distal end portion of said associated rail assembly and supporting a distal-most portion of said plate, and

wherein said distal support extends from said associated rail assembly a height selected generally greater than that of said proximal support.

8. The exercise apparatus of claim 7 wherein said proximal and distal supports extend a height above said associated rail assembly by a distance selected so that said plate assumes an orientation inclined relative to the horizontal at between 0 and $\pm 15^\circ$ when the shuttle is moved to a position substantially adjacent to the proximal end.

9. The exercise apparatus of claim 7 further including a return device for biasing the shuttles to an initial starting position spaced towards the proximal end of said associated rail assembly.

10. The exercise apparatus of claim 8 further including a tensioning mechanism selectively operable by said user to vary resistance to the movement of said shuttles in at least one direction along said associated rail assembly.

11. An ice skating exercise apparatus comprising,

at least one pair of elongated guide assemblies oriented in a substantially mirror arrangement and each extending from a substantially adjacent raised proximal upper end portion and curving downwardly and rearwardly to a lower distal end portion,

a pair of shuttles, each for movably supporting a foot of a user thereon and including a frame and a guide mechanism for retaining said shuttle in sliding movement along an associated one of said guide assemblies between the proximal end portion and the distal end portion, and

whereby the sliding movement of said shuttles along said associated guide assembly substantially simulates the user's foot movement during skating.

12. The exercise apparatus of claim 11 further including a return device for biasing the shuttles to an initial starting position adjacent the proximal end portion of said associated guide assembly.

13. The exercise apparatus of claim 11 wherein said return device is selected from a resiliently extendable spring and a resiliently extendable shock cord.

14. The exercise apparatus of claim 11 further including a tensioning mechanism operable to permit said user to vary resistance to the movement of said shuttles in at least one direction along said associated guide assembly.

15. The exercise apparatus of claim 11 wherein each said shuttle further comprises,

a generally planar plate mounted to said frame and sized to support one of said user's feet with said user standing thereon,

said frame including a proximal plate support spaced closest towards said proximal end portion of said associated guide assembly,

and a distal support spaced closest towards said distal end portion of said associated guide assembly,

said distal plate support extending vertically above said associated guide assembly a distance greater than said proximal plate support whereby said plate is inclined forwardly as said shuttle moves along the associated guide assembly from the proximal end portion towards the distal end portion.

16. The exercise apparatus of claim 15 wherein said proximal plate support and said distal plate support extend a height above said associated guide assembly by a distance selected so that said plate assumes an orientation inclined at between 0 and $\pm 15^\circ$ when the shuttle is located adjacent to the proximal end portion.

17. An ice skating or roller blading exercise apparatus,

a pair of shuttles, each of said shuttles including a frame for movably supporting a foot of a user therein, and a guiding mechanism,

a pair of guide rail assemblies, each said guide rail assembly extending in a direction away from the other from a respective forward proximal end and curving rearwardly to a respective lower distal end portion,

each said guiding mechanism guiding said associated shuttle in movement along an associated one of said rail assemblies between the proximal end and distal end portion,

and whereby movement of said shuttles along said associated rail assemblies moves the user's feet in simulated skating or roller blading movement.

18. The exercise apparatus of claim 17 wherein each said rail assembly comprises a pair of substantially parallel spaced rails which curve downwardly rearward from the proximal end towards the distal end portion,

the apparatus further including

a return device for biasing the shuttles to an initial starting position spaced towards the proximal end of said associated rail assembly, and

a tensioning mechanism selectively operable to permit said user to vary resistance to the movement of said shuttles towards the distal end portion.

19. The exercise apparatus of claim 17 wherein each of said shuttles further comprise,

a generally planar plate mounted to said frame and sized to support one of said user's feet thereon,

the frame including a proximal support spaced towards said proximal end of said associated rail assembly, and supporting a proximate-most portion of said plate, and

a distal support spaced towards said distal end portion of said associated rail assembly and supporting a distal-most portion of said plate, and

wherein said distal support extends from said associated rail assembly a height selected generally greater than that of said proximal support.

20. The exercise apparatus of claim 18 wherein each of said shuttles further comprise,

a pedal comprising generally planar plate mounted to said frame and sized to support one of said user's feet thereon,

the frame including a proximal support spaced towards said proximal end of said associated rail assembly, and supporting a proximate-most portion of said plate, and

a distal support spaced towards said distal end portion of said associated rail assembly and supporting a distal-most portion of said plate, said distal support extending from said associated rail assembly a height selected generally greater than that of said proximal support,

and wherein said proximal and distal support extends a height above said associated rail assembly by a distance selected so that said plate assumes an orientation inclined relative to the horizontal at between 0 and $\pm 15^\circ$ when the shuttle is moved to a position adjacent to the proximal end portion, and inclined at between about 15 and 50° when the shuttle is moved to the distal end portion.

FIG. 2 is a side view of the shuttle assembly in a proximal position.